

## Formation of IC-competence of future teachers-philologists participating in Master's degree program

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**Abstract.** The article highlights the home theoretical and practical experience of formation of IC-competence in future teachers-philologists participating in master's degree program. Particular attention is paid to the allocation and characterization of the components of IC-competence (informative, informational and communicative), as well as the stages of its formation (organizational and preparatory, informative and productive, resultative and productive). The pedagogical factors that effectively influence the preparation of the future teacher-philologist to the use of ICT and the organizational conditions for the effectiveness of the formation of the IC competency of these specialists are outlined.

**Keywords:** *information and communication competence, information and communication technologies, student-philologist, master's degree program, content, methods, forms of formation of ICC.*

**Introduction.** The latest information and communication technologies (hereinafter – ICT), among which the main place occupies a computer, have confidently entered all spheres of human activity. In the field of public administration, economics, education, manufacturing, healthcare and telecommunications, computer is an indispensable tool of work, which accelerates its dynamics and enhances the efficiency of the work of the mentioned above institutions. One of the greatest achievements of computer technology is certainly the Internet, which dramatically changed people's ideas of communication, information, science and education.

However, despite this, graduates of philological specialties quite often show low, or as a better variant, average level of formation of information and communication competence (hereinafter – IC-competence), which significantly reduces the efficiency of their future professional activities.

**Problem statement.** The analysis of home scientific literature has shown that Ukrainian scientists pay considerable attention to the theoretical understanding of the problem of ICT usage in language education. Issues of studying languages with the use of ICT were studied by H. M. Aliyev, R. Buzhikov, Ya. Bulahova, O. Zimovets, O. Zubov, O. Kamensky, D. Kutsoyannis, A. Manako, L. Morskaya, O. Osova, P. Panayotydis, S. Papayevtmiu-Litra, E. Polat, P. Serdyukov, V. Ulishchenko, A. Finkov, A. Yankovets, M. Warschauer and many others. Recently, there are works that highlight the use of ICT in the process of preparing teachers-philologists. O. Radzievska insists on the necessity of forming the professional competence of future teachers of foreign languages by means of information technologies. The process of formation of this competence, according to the researcher, should take place in three stages: 1) theoretical and practical, 2) reflex and fixing; 3) correctional and stabilizing [11, p. 407-408]. A. Avramchuk proposed a model for the development of the competence of the teachers of language disciplines in the design of multimedia electronic educational resources in the system MOODLE [2, p. 50-60] and N. Sorokina and L. Smovzhenko focused their attention on the problem of creating a professionally directed educational foreign language informational and communica-

tive environment for future teachers of philology [14, p. 65-77].

In addition, in modern scientific and pedagogical discourse, there are works devoted to the problem of the preparation of future philologists for the use of ICT in the educational process, which implies the presence of a high level of their formation of IC-competence. The questions of formation of IC-competence are actively investigated by domestic and foreign scientists such as H. M. Aliyev [3], V. Bykov, O. Ovcharuk [4; 5], R. Gurevich, M. Kademiya, M. Kozyar, A. Kuzik [6; 8], D. Kutsoyannis [16], S. Litvinova [9], P. Panayotydis [17], B. Semchuk, S. Semchuk, N. Skrypnyk [13], K. Almutka, Y. Punie, C. Redecker [1] and others. Regarding philologists, N. Fominih, emphasizing that in most Ukrainian higher educational establishments training of future teachers of philological specialties for work with electronic computing equipment is purely technical, proposed an effective model of the training of students of philology to use ICT in professional activity, which is realized through three stages: organizational-preparatory, informational-active, resultative-productive. The author proved that the effectiveness of the mentioned training is conditioned by the implementation of a number of pedagogical conditions: ensuring the motivation and value relation of students-philologists to the use of ICT in professional activities; involvement of students in research work using ICT; creation of informational and educational space for future teachers of philological specialties to apply ICT in professional activities; implementation of interdisciplinary relations to the process of training of future teachers-philologists to the use of ICT in professional activities [15].

G. Degtyaryeva developed and theoretically substantiated the conceptual model of the development of the IC-competence of teachers of philology disciplines in the system of postgraduate education, which consists of four interrelated subsystems: a conceptual one that justifies the goals and objectives of the development of IC-competence of teachers-philologists in the system of postgraduate education; defines the scientific approaches, principles of training, which determine the effective functioning of the model itself; highlights the factors influenc-

ing its development; content-structural, which determines the content and technology of the development of IC-competence of teachers-philologists in the system of post-graduate education, forms, types and methods of training, aimed at its formation and development, presentation of the content of teaching of teachers of philological disciplines in the field of ICT and its educational and methodological support following two strategic lines of formation and development of this competence in between course period; technological, which defines the means of ICT and types of educational activities on the formation and development of IC-competence; the subsystem of monitoring and evaluation of indicators of the level of IC-competence, which is based on the levels and criteria for the development of this competence [7, p. 7-8].

However, there is no theoretical and applied research, devoted to the questions of formation of the IC-competence of future teachers of philology in the conditions of the magistracy.

In view of this, the purpose of the article is to analyze the structure of IC competence, levels of its formation, stages, pedagogical factors and organizational conditions for its successful formation, generalization of the results of a pedagogical experiment aimed at forming the IC competence of teachers of philology during their study in the magistracy.

**Methods.** In the course of the research, the following methods were used: theoretical – analysis, synthesis, abstraction, generalization, analogy – that contributed to the study of the development of theoretical issues of the formation of ICT of students-philologists; empirical (observation, testing, experiment – to determine the level of formation of IC-competence of students-philologists participating in master's degree program, checking the hypothesis for its improvement).

**Results.** We consider that the result of the training of teachers-philologists should be formed IC-competence as a set of knowledge about: the use of such programs as MS Office; information services: WWW, e-mail, electronic conferences, IRC, electronic libraries, Web2; psychological and pedagogical principles of using ICT; requirements to information and communication technologies, to the formation of interactive educational and methodological complexes in language and literature; the differences of information and communication technologies of education from the traditional ones; didactic capabilities of a personal computer; the specifics of the use of targeted software in teaching; the peculiarities of the management of the educational process with the help of ICT; computer-oriented teaching methods. In our opinion, the contemporary teacher-philologist with the formed IC-competence must possess certain skills: to work out electronic documents; create multimedia presentations; to place personal scientific and methodical developments on the Internet; to use the computer while solving practical tasks; work in educational computer programs; to design electronic teaching materials; to use information technology to evaluate learning outcomes; to use informational technologies to increase the level of professional competence and to perform educational, upbringing, research and other functions [12, p. 199].

Thus, the structure of the IC-competence of a teacher-philologist is represented as a set of three components:

informative, informational and communicative, which are relatively independent, but are also closely interconnected.

*The informative component* includes a set of knowledge, skills and habits in computer science necessary for the implementation of the main functions of the teacher-philologist at the technical level. The basic skills that make up the basis of informational competence include the following: informational, analytical, prognostic, projective, organizational. *Informational skills* include storage, copying and transference of information on electronic multimedia and Internet; presenting the information using presentation technologies; processing of electronic documents; using the computer in solving practical problems; participation in international telecommunication contests and projects, placing the results of own research in the Internet, etc. *Analytical skills* include analysis of pedagogical software tools and Internet resources taking into account the main didactic, ergonomic and technical requirements; evaluation of the educational potential of electronic resources, the degree of their interactivity and informativeness, the forms of information presentation, ways of organizing the educational process, involvement of students in active cognitive activity, etc. Among *prognostic skills* we distinguish the ability to predict the effectiveness of the use of teaching technical aids and resources of the Internet in the educational process in accordance with the delivered didactic tasks with prediction of possible deviations and undesirable consequences, etc. The *projective skills* include the ability to design an educational process using electronic resources and to develop specific methodological recommendations for their application in professional activities; definition of the system of teaching aids necessary for teaching language and literature using information technologies, etc. *Organizational skills* include management of the pedagogical process using information and communication technologies; conducting psychological and pedagogical diagnostics of the level of knowledge, advancement in training on the basis of computer testing, diagnosing methods for determining the level of intellectual potential of students, control and evaluation of their knowledge, skills and habits.

*The informational component* includes the ability of the future teacher-philologist to process various types of information, namely a set of knowledge on: ICT (program computer training and control, hypertext, hypermedia, multimedia, computer modelling); communication and information learning technology (audio, video courses, video-television courses, video computer courses, CD-Rom courses, e-mail, teleconferences, videoconferences, electronic conferences, webinars); interactive learning technologies; didactic conditions for the use of ICT in the educational process, in particular in the process of learning and teaching foreign languages; distance learning technologies; the peculiarities of organization and supporting of the information environment in the educational institution; principles of operation of database management systems; psychological and pedagogical principles of using ICT; requirements to ICT, to the formation of interactive language and literature teaching complexes; the differences of information and communication technologies of training from traditional technologies; com-

puter-oriented teaching methods.

The *communicative component* defines skills and habits to communication and motivation to it by means of ICT. That is, the communication component includes the ability to use information to organize communication in the activities of the teacher-philologist, to establish interpersonal relationships, to choose the best style of communication in different situations, to demonstrate means of verbal and non-verbal communication with the use of information and communication technologies.

To *pedagogical factors* that effectively influence the preparation of the future teacher-philologist to the use of ICT are as follows: teacher's position regarding the use of ICT; attitude to education, personal qualities and level of students' training; scope of ICT in the educational process.

The *organizational conditions* for the effectiveness of the formation of the IC competence of the future teacher-philologist are: to establish systematic coordinated work of teachers of all disciplines, both linguistic and psychological and pedagogical; creation of the information environment of higher education institution; use of a student of electronic communication in a computer network; systematic individual work of a student in a computer environment; development and use of specialized educational computer programs for the organization of the educational process and the management of the process of independent work of students by the teacher.

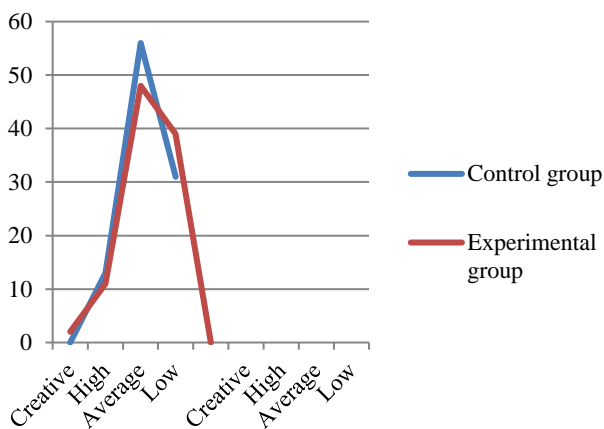
We will generalize the experience of formation of the IC-competence of students-philologists participating in master's degree program in Mariupol State University. In particular, at the period from the 1 September 2017 to December 2018 we conducted an experimental study aimed at verifying the level of formation of the named competence and substantiating the conditions for its formation and improvement. The working *hypothesis* was formulated as follows: "Formation of information and communication competence of future teachers-philologists participating in master's degree program becomes effective on the condition of enrichment of academic disciplines content modules aimed at the development of the informative, informational and communicative components of IC-competence; the implementation of the content of the developed modules through the forms and methods of studying and assimilating of techniques for the use of ICT in professional activities; saturation of the process of teaching all disciplines of the specialty with information and communication technologies of teaching; intensification of project activity as a method of formation of IC-competence at the creative level". The *duration* of the experiment was determined basing on the period of teaching students participating in master's degree program of the specialty 014 "Secondary education", specialization 014.02 "Language and literature (English)", "Language and literature (German)"; 035 "Philology", specialization 035.041 "Foreign languages and literature (first – English)", 035.043 "Foreign languages and literature (first – German)", and with the duration of 1.5 years. The students with the main language – English (29 persons) – were the experimental group, and students with the main language – German (12 persons) – control.

Determination of the level of formation of the IC-competence of future teachers-philologists occurred ac-

ording to the criteria we developed (informative, informational and communicative). Each of the criteria was evaluated on a descriptive scale, according to which the indicators of the informative, informational and communicative criteria of the IC-competence of future teachers-philologists are of four levels of detection: low, medium, high and creative. The *creative level* of the formation of IC-competence characterizes the student's motivation for the complex creative use of ICT in professional and self-educational activities; skills of confident possession of computer tools, highly developed skills of software selection for the solution of didactic tasks; free orientation in the information space, on the Internet, developed skills of active search and processing of information; methodical skills of creating educational communication with the help of ICT at the creative level. The *high level* of formation of IC-competence characterizes the formed student's motivation to use ICT in professional and self-education activities; sufficient practical skills of mastering computer tools, well-developed skills of software selection for the solution of didactic tasks; confident orientation in the information space, on the Internet, sufficiently developed skills of searching and processing the information; stable methodological skills for creating educational communication with the help of ICT with the benefits of a constructive type of activity. The *average level* characterizes the mature, but unstable student's motivation to use ICT in pedagogical activities, low or hidden need for self-improvement; general skills of mastering the computer, reproductive character of knowledge and skills of software selection for the solution of didactic tasks; passive approach to the use of acquired skills in searching and processing the information; mediocre methodical skills for creating educational communication with the help of ICT, giving preference to the problems of reproductive type. The *low level* is characterized by the motivation to use ICT in practice and for personal needs; general understanding (superficial knowledge) about the basic computer facilities or general skills of mastering the computer, poorly developed skills of the selection of software for the solution of didactic tasks; passive approach to the application of knowledge about ways of searching and processing information, inability to use them; fragmentary knowledge (or lack thereof) about the methodology for creating educational communication with the help of ICT.

To evaluate the level of formation of IC-competency we have developed tests of four levels of complexity, which included the task of checking the formation of three components (informative, informational and communicative) of the named competency.

Entrance testing revealed that the level of formation of IC-competence in both groups (control and experimental) is almost the same. The average level was demonstrated by about 50 % of the respondents, 31 % in the control group and 39 % in the experimental group showed a low level of ICT's formation, about 12 % stated their level as high. As for the creative level, it was not demonstrated by any student in the control group, and it was shown only by 2 % of the respondents in the experimental group. The results of entrance testing are presented in Figure 1.



**Figure 1.** The level of formation of the ICC at the beginning of the experiment

After the entrance testing, the contents of the academic disciplines of the experimental group “Methodology and organization of scientific research”, “Methodology of teaching a foreign language”, “Comparative pedagogics”, “Fundamentals of professional creativity and mastery”, “Basic foreign language” was supplemented with questions that, according to our opinion, should help to increase the level of formation of information and communication competence of future teachers-philologists participating in master’s degree program.

Thus, within the disciplines “Comparative Pedagogics” and “Fundamentals of Professional Creativity and mastery” the following issues were to be studied: modern trends in the development of higher pedagogical education – informatization and computerization; ICT, their types and peculiarities of usage in school practice; information environment in school, components, features of creation.

In the process of studying the discipline “Methodology and organization of scientific research” students got acquainted with the methodology and methods of scientific research using the modern information technologies; mastered the traditional and newest sources of information (electronic, computer); learned to systematize and search scientific information through the Internet; organized the project and scientific activity by means of ICT.

The content of the discipline “Methods of teaching foreign languages”, among other things, was aimed at informing students about: the content of the IC-competence of language and literature teacher; audiovisual learning technologies; interactive learning technologies; didactic conditions of the use of information technologies at the lessons of foreign languages; data bank for teaching foreign languages; computer textbooks of foreign language; the use of podcasts in teaching foreign languages to form a foreign language communicative and methodological competence (audio or video of the lecture material, pieces of lessons, discussions on methodological issues for self-study, etc.).

In the process of teaching mentioned above modules, the following methods and forms of work were used.

1. Web conferences, during which the formation of IC-competence is both active (participation in the conference, preparation of performances, etc.), and passive (even to be a web-conferencing student is not possible without the

use of elementary computer skills). Web conferences were held in the process of mastering such disciplines as “Methodological Workshop” and “Basic Foreign Language” and covered the following topics: “Culture Clashes”, “Genetic Engineering”, etc.

2. Compilation of electronic dictionaries or multimedia portfolio.

3. Self-studying work on the Internet in order to find the necessary information, to develop exercises and tasks for students of different age groups, etc.

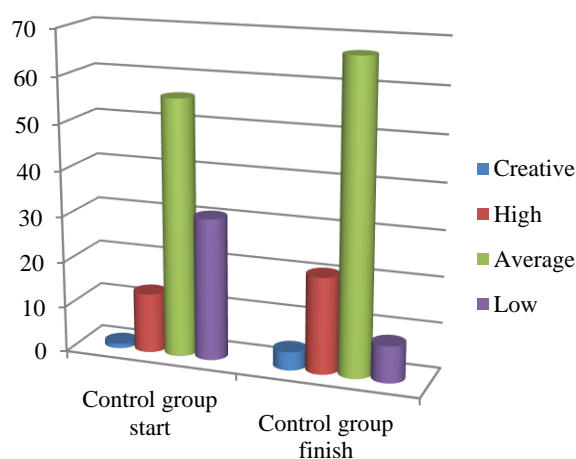
4. Method of projects. For example, during teaching the subject “Fundamentals of professional creativity and mastery”, students were offered a project work on the theme “New Ukrainian School: Benefits and Risks”, where future specialists had the opportunity to present their understanding of a new Ukrainian school with the help of multimedia presentation, to prepare a layout of new classrooms, etc.

5. Creating a page on the site and its content. Yes, the students were encouraged to create a site for school, class, foreign language teacher, etc.

6. Implementing on-line tasks in the Moodle learning environment.

7. Workshop “Moodle Platform: New Opportunities”. The workshop plan presupposed learning of the following issues: 1) the general information about Moodle; 2) the interface of the training course (how to use it); 3) Moodle text editor; 4) creation of on-line tests; 5) the “Game” element on the Moodle platform and its organization; 6) Moodle Cloud.

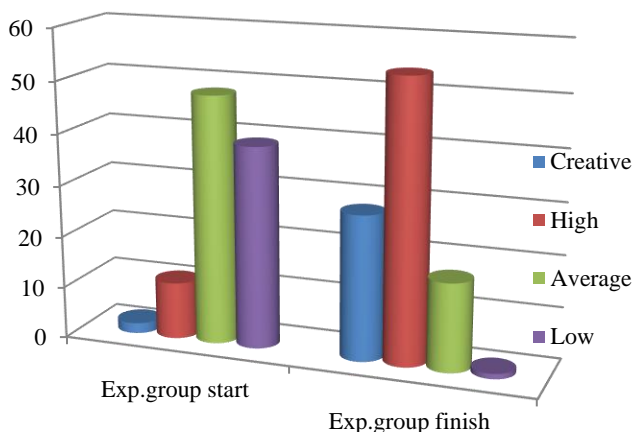
After the conducted work, initial testing was carried out. According to its results, it was found that in the control group the percentage of creative (1 %-4 %), high (13 %-21 %) and average levels (56 %-67 %) grew insignificantly and the percentage of students with low level of IC-competence decreased (8 %-1 %). At the same time, almost 70 % of students have mastered the material at the average level (see Fig. 2).



**Figure 2.** Comparative data of the control group at the beginning and the end of the experiment

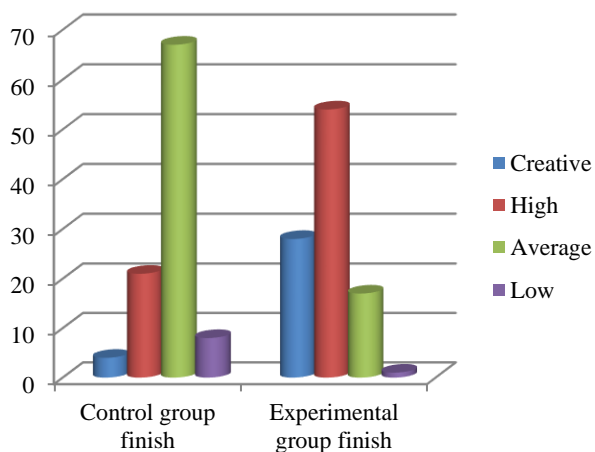
In the experimental group the students with low level of formation of IC-competence almost did not remain, the percentage of students with an average level of formation significantly decreased (from 48 % to 17 %), the number of students with a high and creative level was more than

80 % (see Fig. 3).



**Figure 3.** Comparative data of the experimental group at the beginning and the end of the experiment

Consequently, according to the results of experimental work, the number of students with a creative level of formation of IC-competence in the experimental group increased by 26 %, while in the control group this figure increased by only 3 %. The number of students with a high level of formation of IC-competence in the experimental group increased by 43 %, in the control group this number increased by only 8 %. Students with an average level of formation of IC-competence in the control group are almost 70 %, while in the experimental group this figure is less than 20 %. The low level of the formation of IC-competence was stated in 8 % of the control group students, while in the experimental group, there were no students with a low level of formation of IC-competence.



**Figure 4.** Comparative data of the experimental and control groups at the end of the experiment

In addition, we should note that for the successful formation of IC-competence it is necessary to form it not only in students but also in lecturers themselves. For this,

we offer the organization of appropriate seminars for lecturers teaching the participants of master’s degree programs: seminar for lecturers on the creation and implementation of the content modules for the formation of the IC-competence of philologists; seminar-workshop for teachers “Project activity of students as a means of formation of IC-competence at the creative level” etc.

**Discussion and Conclusions.** Thus, the IC-competence of the teacher-philologist has three components: informative, informational and communicative, which together allow the teacher to perform his professional functions at a high level. The study established that future teachers-philologists participating in master’s degree programs show a predominantly average level of formation of IC-competence (50 %), a significant number of undergraduates confirm their level as low (31-39 %), and a very small number of students have high (12 %) and creative levels (2 %). Under today’s conditions of rapid development of ICT and their proved effectiveness in the educational sector, this situation is unacceptable and requires its immediate solution. Considering this, the task of forming and further improving of IC-competence of future teachers-philologists participating in master’s degree programs which involves the systematic coordinated work of teachers of all disciplines, both linguistic and psychological and pedagogical, is obligatory at all philological faculties. For this purpose, it is necessary to enrich the content of individual academic disciplines (for example, “Methodology and Organization of Scientific Research”, “Methods of Teaching a Foreign Language”, “Comparative Pedagogics”, “Fundamentals of Professional Creativity and Mastery”, “Basic Foreign Language”, etc.) with the issues of application of ICT in the educational process, of use of such methods and forms of work as: web conferences; compiling electronic dictionaries or multimedia portfolio; self-study work on the Internet for the purpose of finding the necessary information, developing exercises and tasks for students of different age categories; project method; creating a page on the site and its content; performing on-line tasks in the Moodle learning environment, etc. Such work can significantly improve the level of formation of IC-competency of future teachers-philologists. In addition, in order to successfully carry out this task, lecturers teaching the participants of master’s degree programs also need to constantly improve their qualification not only on the subject of teaching, but also on the use of ICT in professional activities. This can be facilitated by appropriate seminars, trainings, as well as full-length, long-term advanced training courses.

The prospective topics of further scientific research include the issue of comparative analysis of the content, methods, forms and means of forming the IC-competence of students-philologists in Ukraine and the leading countries of the world.

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